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Maryland Agricultural College Bulletin

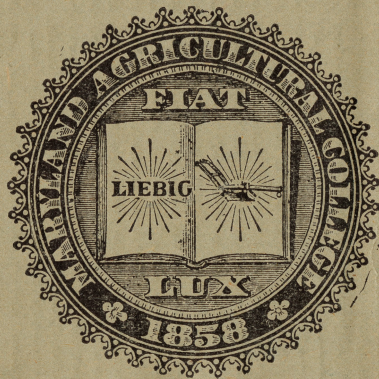
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No. 1

THE MARYLAND AGRICULTURAL COLLEGE



COLLEGE PARK, MARYLAND

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INTRODUCTION.

The farmers of Maryland are invited to read carefully the following pages and then decide if they can afford to have their sons fail to attend at least one of the special courses in agricultural instruction herein set forth.

Though the prices of farm products have advanced somewhat in this "era of general prosperity," yet the prices of practically everything which the farmer has to buy have increased, and it behooves him if he would hold his own to give yet greater attention to every legitimate means of increasing the products of his farm at a minimum of cost and of securing for those products the highest pecuniary return.

Science has been working for agriculture no less successfully than for other arts and occupations, yet science has benefited the farmer less than his competitors solely because he will not heed her teachings. Professional schools, technical schools, schools of manual training and engineering are crowded with young men whose fathers wish for them a successful career and who realize that in this day success depends on special education. The farmer alone, in too many cases, seems to think that education is unnecessary and that in his vocation there have been no advances and no improvements.

The farmer boy of today is as much in need of special education in his line as is the lawyer, the doctor, the engineer, and it is a gross injustice to the lad who elects to stay on the farm to fail to give him through a course at an agricultural college the technical equipment which is necessary to insure success.

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TEN-WEEKS SPECIAL COURSE IN AGRICULTURE.

BEGINNING TUESDAY, JANUARY 7, 1908.

SYNOPSIS OF COURSE.

1. SOILS--TWENTY-TWO HOURS.

PROF. W. T. L. TALIAFERRO

The examination and classification of soils; the relation of soils to water, air, heat; adaptation of soils to crops; improvement of physical condition of soils; drainage, ventilation, cultivation, green manures, cover crops, rotation of crops.

II--PLANT PRODUCTION--THIRTY HOURS.



HARVEST TIME IN MARYLAND.

This course embraces the growing of farm crops, including the selection of seed, preparation of the soil, fertilizing, cultivation and harvesting. Particular attention is given to the growing of alfalfa, cow-peas, clover and other legumes for stock feeding and soil improvement.

Maryland is a "Corn State." The corn crop occupies a greater acreage and is worth more to the farmers of the State than any other crop. Its average yield per acre is already greater than in some of the "Corn States" of the West and is on the increase. Ten bushels per acre could easily be added to it by a more judicious system of seed selection than at present prevails. That would mean at ordinary prices an increase in the income of the corn growers of Maryland of more than three millions of dollars, a very substantial increase and well worth trying for. In this course great attention is paid to this important subject, and students are made thoroughly familiar by actual practice with the most improved methods of selecting and testing seed corn. They will also be given practical instruction in the principles of breeding corn for improvement in yield and feeding value and in the most approved methods of cultivating and fertilizing this important crop.

III—AGRICULTURAL CHEMISTRY—TWENTY HOURS.

DR. H. B. MCDONNELL AND MR. MORGAN.

Soils; their formation, classification and properties. The mineral constituents of soils and their bearing on plant growth. The best means of supplementing them when needed for plant growth.

IV—MANURES—TWENTY HOURS.

DR. H. B. MCDONNELL.

The best methods of preserving and applying farm manure. The relative value of the different manures and fertilizers. The maintenance of soil fertility. The place of lime in the farm economy.

V—STOCK FEEDING—TWENTY HOURS.

MR. B. E. PORTER.

The work in Stock Feeding will cover the principles of animal nutrition, the composition of feeding stuffs, their combination into properly balanced rations and the relation between the sustenance of animals and their products. The subject will be considered under the following heads:

1. The chemical elements and compounds in feeds.
2. Function of the nutrients.
3. Digestion of food.
4. Cattle foods. Commercial feeding stuffs.
5. The selection and compounding of rations.
6. Feeding growing animals.
7. Feeding for the production of milk, meat, wool, eggs and energy, or work.

VI—FARM LIVE STOCK—TWENTY-EIGHT HOURS.

MR. B. E. PORTER.

Principal breeds of horses, cattle, sheep and hogs; their uses and adaptation; principles and practice of stock breeding; stock judging.



SOME SPECIMENS OF THE DAIRY HERD.

This section includes a thorough course in judging farm live stock, especially dairy and beef cattle. The student is taught by actual handling of the stock and the use of the score card to correctly select animals for different purposes and to accurately gauge their value for their special purpose.

VII—DAIRYING--TWENTY HOURS.

MR. B. E. PORTER.

The dairy instruction will consist of lectures on bacteriology and the necessary precautions to insure a good product; lectures on the obtaining of cream from the milk, comparing the old gravity process and the use of separators; on milk testing with the Babcock test, and the place of the test in modern dairying and on butter making, with the use of the acid test, which practically insures the making of good butter. The lectures on milk testing and butter making will be supplemented by practical instruction, and each student will be required to handle the Babcock test, as well as the separator and the churn.

VIII—HORTICULTURE—FORTY HOURS.

MR. P. M. NOVIK.



STUDENTS MAKING GRAFTS.

A discussion of the fundamental principles of fruit and vegetable growing, orchard cultivation, fertilization, pruning, grafting, packing and marketing of fruits. The construction and management of hotbeds, cold-frames and the propagation of plants. These lectures will be supplemented by practical work in greenhouse and orchards.

IX—VETERINARY SCIENCE—FORTY HOURS.

DR. S. S. BUCKLEY.

An elementary study of the diseases of live stock should be made by everyone having charge of domesticated animals. Frequently farm animals become a source of considerable loss through neglect or unintelligent management when out of condition.

While the treatment of sick animals should rest with veterinarians trained in such work, yet the owner or manager must know when such services are needed and how to carry on such treatment intelligently when directed by the veterinarian. The effort is made in the following course of lectures to prepare the student with such knowledge and to enable him the better to understand the bulletins, reports and treatises upon veterinary subjects which he may possess:

1. Nutrition.
2. Diseases due to mistakes in feeding.
3. Infectious diseases.
4. Cattle and their common diseases.
5. The examination of a horse for soundness.
6. Lameness.
7. The foot—its care and shoeing.
8. The use of medicines and minor operations.
9. Stable sanitation and the prevention of tuberculosis.

X—TOBACCO—FIVE HOURS.

PROF. H. J. PATTERSON.

The plant bed, culture, harvesting, curing, marketing and effects of fertilizing elements upon the quality.

XI—PLANT PHYSIOLOGY AND PATHOLOGY—FIFTEEN HOURS.

PROF. J. B. S. NORTON.



STUDYING PLANT DISEASES.

Five lectures on the general principles of plant life and structure; how plants live, grow and reproduce, and how they are influenced by different conditions of light, temperature, moisture and other factors in their surroundings, considered with special reference to agricultural problems. Five lectures on the causes, symptoms and treatment of plant diseases, with practice work in examination and study of diseased plants and the preparation and use of remedies and preventatives.

This course will include the discussion of the laws of plant life, the uses and structure of plant parts, nutrition, growth, formation of products by the plant, reproduction by seeds and otherwise, seed testing, useful plants, weeds, poisonous plants, causes of disease, parasitic fungi, preparation of fungicides and spraying.

XII—ECONOMIC ENTOMOLOGY—TWENTY HOURS.

PROF. T. B. SYMONS.

It has recently been estimated that insect injury to agricultural products amounts to over seven hundred millions of dollars each year. It is not only the actual destruction of the crops that causes



CLASS IN ENTOMOLOGY.

loss, the effect upon the products may be to reduce the grade and make them more or less unsalable and unprofitable. These lectures are designed to treat of some of the more common pests that are responsible for this loss, with concise considerations of their life histories and habits and to discuss fully the means for control at our command.

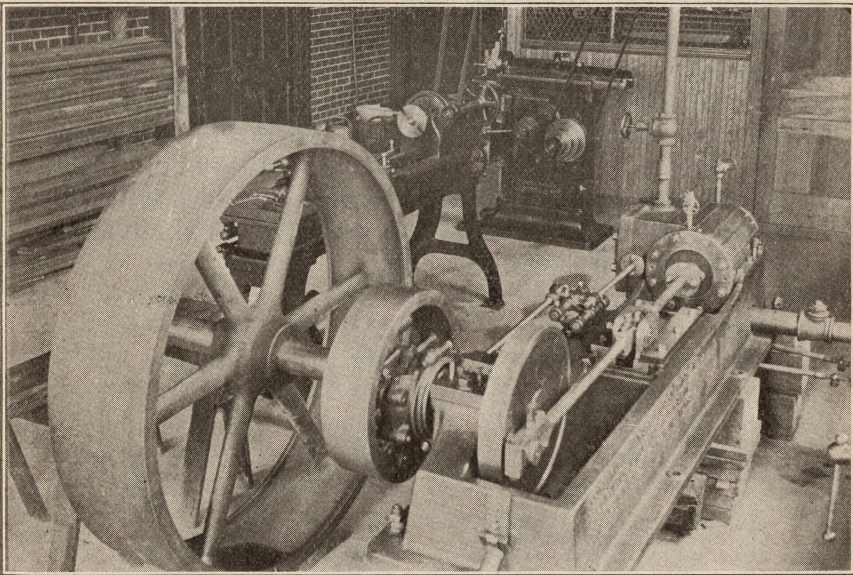
Attention will also be given to the making and applying of insecticides.

XIII—CARPENTRY AND BLACKSMITHING—FIFTY-FIVE HOURS.

PROF. HARRY GWINNER.

ASSISTANTS, MR. MICHAEL AND MR. CRISP.

A knowledge of this is very important to the agriculturist of this day. The equipment for this instruction is complete. The indus-



ENGINE IN MACHINE SHOPS—MADE BY STUDENTS.

trious, eager seeker after knowledge will accomplish much in the line of this work in the time allotted.

1. Sharpening of tools.
2. Adjustment of tools.
3. Sawing, planing, chiseling and boring.

Practical lessons in blacksmithing, mechanism and care of forge shop and smith's tools. Preparation of forge for fire. Building and managing the fires and fluxes. Forging, bonding, welding.

XIV—FARM ACCOUNTS—TWELVE HOURS.

PROF. H. T. HARRISON.

A simple, concise and accurate method of keeping farm accounts. Business methods are as necessary to the successful farmer as to the merchant. Neither can do without a practical knowledge of bookkeeping.

XV—ROAD CONSTRUCTION AND LEVELING—FIVE HOURS.

PROF. THOMAS H. TALIAFERRO, C. E., PH. D.

A brief treatment of the principles involved and the methods used in the location, construction and maintenance of country roads.

An opportunity will be given those desiring it to learn the use of the level in laying out drains, etc. Students wishing to take the work in leveling must report to the instructor in charge within two weeks after the opening of the term.

XVI—CIVIL GOVERNMENT—TEN HOURS.

PROF. F. B. BOMBERGER.

The general principles of government; the rights and duties of citizens and an inquiry into the political institutions of Maryland.

SCHOLARSHIPS FOR TEN-DAYS COURSE.

In order to encourage improvement in the corn crop, the great staple of Maryland farmers, the trustees of the Maryland Agricultural College in 1906 offered to the farmer boys of the State twenty-three free scholarships, with all expenses paid, to a ten-days course at the college, consisting of lectures and practical work in seed corn selection and testing, the growing of alfalfa and other legumes, and the judging, selection and feeding of farm live stock.

These scholarships were awarded to the boys who exhibited the best ten ears of corn at the Farmers' Institute, held in their respective counties. As a result, a number of bright young men gathered at the college on the 8th of last April and received free of all charge ten days of practical instruction in subjects most valuable to them in their future career as farmers.

Though the time in this course was short and the subjects taught necessarily limited, the instruction given was of such a character and the eagerness of the boys to receive it was so great that one and all on leaving at the end of the period testified that they were more than satisfied with what they had received and believed that in no other way could they have utilized their time to so great advantage.

The trustees of the college have repeated this generous offer for the coming winter, and the farmer boys of the State have again the opportunity to obtain for themselves, practically without cost, the benefits of this timely and valuable course of instruction.

While the scholarships in this course are limited to one for each county, there is no limit to the number of young men who may attend. The only charge for those not holding scholarships will be the very moderate one of eight dollars for table board.

Prospective competitors for these scholarships will do well to read carefully the rules governing the competitions, which, with a summary of the course and a score card for corn judging, are given in the following pages.

Since the awarding of the scholarships is to be made at the Farmers' Institutes, the ten-days short course cannot begin till after the last institute has been held. It will, however, commence on the Tuesday following the close of the last institute for the season of 1908.

RULES GOVERNING THE AWARDING OF SCHOLARSHIPS FOR THE
SPECIAL TEN-DAYS COURSE FOR 1908.

- 1 Competition shall be limited to sons of Maryland farmers, residents of the county in which they compete.
- 2 No one shall compete who has had a course of instruction in an Agricultural College.
- 3 The competitive exhibit shall be in charge of Mr. William L. Amoss, Director of Farmers' Institutes, a department of the Maryland Agricultural College, and shall be on the first day of the Annual Farmers' Institute in each county.
- 4 Each competitor shall exhibit ten (10) ears of corn, white or yellow, selected by himself, but not necessarily grown by himself.
- 5 The exhibits shall be judged by a competent judge, selected by the President of the Agricultural College and Director Amoss, and judgment shall be made in accordance with the printed scale of points in use at the Maryland Agricultural College, distributed by Director Amoss at the Farmers' Institutes last winter and appended to these rules.
- 6 Each exhibit of corn shall be delivered to Mr. Amoss securely done up in a box or neat parcel, with the name of the exhibitor inside in a sealed envelope, which shall not be opened until the award has been made.
- 7 After the judge has made his award he shall announce it to Mr. Amoss, who shall afford him an opportunity at the institute to make public his decision and the reasons therefor.

As each exhibit is opened for examination by the judge he shall give it a number, mark the same number on the outside of the sealed envelope containing the exhibitor's name. The envelope shall then be given to Mr. Amoss.
- 8 No one under fifteen or over twenty-one years of age will be allowed to enter the contest.
- 9 Each contestant must attend the day sessions of the Farmers' Institute.
- 10 Each specimen of premium corn will be sent by Mr. Wm. L. Amoss via express to the President of the Maryland Agricultural College for the use of the Department of Agriculture.

EXPLANATION OF POINTS IN CORN JUDGING.

MARYLAND AGRICULTURAL COLLEGE.

- 1 UNIFORMITY, 10 POINTS. The ten ears in the sample should possess similar characters and be true to the variety which they represent.
- 2 SHAPE OF EAR, 10 POINTS. The shape of the ear should conform to the variety type. The cylindrical or slightly tapering type is to be preferred as producing greatest uniformity of grain.
- 3 PURITY OF EAR (a), GRAIN, 5 POINTS. Color of grain should be true to the variety and free from mixture. For one or two mixed kernels make a cut of one-fourth point, for three or four a cut of one-half point. For six or more cut one point, differences in shade of color as light or dark yellow, white or cream color must be scored according to breed characteristics.
(b), COB, 5 POINTS. A white ear with red cob or yellow ear with white cob should be marked zero. Such a mixture indicates lack of purity and a tendency to depart from the type.
- 4 MARKET CONDITION, 10 POINTS. Corn should be in good market and seed condition as indicated by freedom from dampness and mould, a clean, bright color, plump and well-developed grain, firmly packed around a firm well-cured cob.
- 5 TIPS, 5 POINTS. The tip should not taper more sharply than the ear, but should be of regular form, filled to the end with regular sized and regular shaped grains arranged in regular rows to the extremity. Flattened, divided or projecting naked tips are objectionable.
- 6 BUTTS, 5 POINTS. The rows should extend in regular order over the butt, leaving a cup-shaped depression when the shank is removed. Flat or unfilled butts, swelled butts or those having irregular or spreading rows are objectionable and must be cut according to judgment.
- 7 KERNEL. (a), UNIFORMITY OF, 10 POINTS. The kernels should be uniform in shape and size. Not only should the kernels be uniform on each individual ear, but the kernels of each ear should be uniform with those of every other ear of the exhibit. They should be true to the variety type.
(b), SHAPE OF, 5 POINTS. The kernels should be wedge-shaped so that their edges touch from tip to crown. The tip portion is rich in protein and oil, and hence of high feeding value. A large germ is important for vigorous growth and high quality.
- 8 LENGTH OF EAR, 10 POINTS. The length of the ear varies according to the variety type and the ideal of the breeder, but all the ears of the exhibit should be of the same length. Where no breed standard has been established a length of from nine to ten inches may be taken as a standard. Usually ears much over ten inches long are shallow grained and unfilled at butt and tip.
- 9 CIRCUMFERENCE OF EAR, 5 POINTS. The circumference varies with the variety, yet there should be a relation between the circumference and the length. If the circumference is very great, there is usually a large cob which makes the ear mature slowly, often retarding the curing until the ear has been injured by frost. Where there is no variety standard the commonly adopted scale is that the circumference should be to the length as 3 is to 4. The circumference should be taken one-third the distance from the butt.

- 10 SPACE (a), FURROWS BETWEEN THE TOPS OF THE ROWS, 5 POINTS. The furrows between the rows should be of sufficient size to permit the kernels to dry out readily, but not so large as to lose in proportion of corn to cob. A convenient rule is for a furrow of one-thirty-second of an inch no cut. For a furrow one-sixteenth of an inch a cut of one-half point. For more than one-sixteenth of an inch a cut of one point.
- (b), SPACE BETWEEN THE TIPS OF KERNELS AT THE COB, 5 POINTS. This is highly objectionable, as reducing the weight of grain and indicating low vitality and feeding value.
- 11 PROPORTION OF GRAIN TO COB, 10 POINTS. To determine the proportion of grain, weigh every alternate ear of the exhibit, shell off the grain and divide the weight of the ears into the weight of the grain. The result will give the per cent. of grain. As in case of length and circumference there are variety standards for proportion of grain. Where there is no variety standard the proportion should not be less than 86 per cent. In scoring the proportion make a cut of one-half point for every per cent. below the standard.
- The proportion of grain depends on the size of the cob, the length and shape of grain, maturity and dryness of ears.

SPECIAL TEN-DAYS COURSE IN SEED CORN SELECTION, LIVE STOCK JUDGING AND LEGUME GROWING.

SCHEDULE FOR FIRST WEEK.

	MORNING.	AFTERNOON.
TUESDAY.	Selecting of Seed Corn. Practical work and lecture.	Selection of Dairy Cattle. Practical work and lecture.
WEDNESDAY.	Selection of Seed Corn. Practical work and lecture. Germinating test for seed corn. Practical work and lecture.	Selection of Dairy Cattle. Practical work and lecture.
THURSDAY:	Scoring Corn. Practical work. Germinating test for seed corn. Practical work.	Selection of Dairy Cattle. Practical work and lecture.
FRIDAY.	Scoring Corn. Practical work. Germinating test of seed corn. Practical work.	Use of Score Card with Dairy Cows. Practical work and lecture.

SCHEDULE FOR SECOND WEEK.

	MORNING.	AFTERNOON.
MONDAY.	Legumes as Fertilizers. Lecture. Germinating test for seeds of Legumes. Practical work.	Use of Score Card with Dairy Cattle. Practical work.
TUESDAY.	Legumes as Food. Lecture. Varieties of legumes. Lecture.	Use of Score Card with Dairy Cattle. Practical work.
WEDNESDAY.	Germinating Test for Seed Corn. Practical work. Legume varieties. Lecture.	Selection of Steers for Feeding. Practical work and lecture.
THURSDAY.	Germinating Test for Seed Corn. Practical. Corn Breeding. Lecture.	Selection of Steers for Feeding. Practical work and lecture.
FRIDAY.	Production of Legumes. Lecture. Corn Breeding. Lecture.	Selection of Draft Horses. Practical work and lecture.

REQUIREMENTS FOR THE TEN-DAYS COURSE.

Boys holding scholarships for the ten-days special course *will not be required to wear uniforms or attend any military duties.* They will be given board, lodging and tuition free, but will be required to bring with them pillows, bed clothes and towels and will be required to look after their own rooms.

The course will be open to young men not holding scholarships. Should any such attend the course, they will be required to pay four dollars a week for table board. In all other respects they will be treated as the scholarship students.



SEED CORN GERMINATION TEST.

The covering material has been removed leaving the grains undisturbed in the box. The white roots and sprouts of the germinated grains are seen.

